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FISH NOTES FOR 1925 FROM SANDY HOOK BAY

This year, poor from a commercial standpoint, was marked by an unusual number of species not definitely recorded from this bay. In addition numerous rarities for this body of water were noted as well as the presence in the middle of summer of forms not otherwise known, except as early spring or late fall visitors. Although the season was a rather abnormal one in regards the amount of rainfall and the salinity was probably somewhat lower than usual, the temperature of the water was substantially as in former years. The variety of small fishes made this year easily the most interesting one since the present series of observations was started in 1920. In the following notes on various species deemed worthy of record, the measurements refer to standard lengths (without caudal).

Isurus tigris (Atwood)

On July 2 a specimen was seen, in a passing boat which would not stop, that was undoubtedly of this species, about 240 cm. in length. On June 24 a report was received of the capture of a 500 pound specimen

that answers the description of this species. During this time *Carcharhinus milberti* (Müller and Henle) and *Carcharias taurus* Rafinesque were very common. A new species for the bay.

Pteroplata maclura (Le Sueur)

A single example was taken in a pound net on July 30. It measured 780 mm. in spread of disc. An empty female with small ova averaging 5 mm. in diameter. Called "Butterfly" by the fishermen. This is a new species for the bay.

Acipenser brevirostrum Le Sueur

An example of about 400 mm. was taken on July 8.

Salmo irideus Gibbons

A single female example of 320 mm. was taken in a pound net on June 9. The owner stated that the previous day he had taken one of similar size. Called "Salmon" by the fishermen. Scale examination showed it to be a fish spawned in the winter of 1922. Reference to records at the New York Aquarium revealed that on May 3 of that year three thousand young fish of this species were planted in a brook emptying into Queensbury Lake, Palisades Interstate Park. As this place is unscreened, mention was made to some of the park wardens by one of our men at the time, that the fish might drop down into the Hudson River. It would seem more than likely, by a process of elimination that this fish was one of these. A new species for the bay.

Anchovia mitchilli (Cuvier and Valenciennes)

Of several specimens taken in the "Dredged Pool"[1] on June 2 one of 84 mm. had an anal count of 30.

Tylosurus marinus (Walbaum)

Measurements of the relative lengths of the bill-like jaws showed them to approach each other in length with the growth of the fish, the very small examples having the upper jaw little longer than half

1. See "The Fishes of Sandy Hook Bay" for the location of this and other localities. *Zoologica*, Vol. II, No. 15, August 15, 1922.

the lower. There appear to be no figures of the newly hatched young of this species although from the following table it would seem that they must somewhat resemble hemiramphids in the form of the mouth.

Standard Length in mm.	Upper Jaw (measured from eye)	Lower Jaw	Difference	Percent Difference
44.5	8.5	14.0	5.5	39
76.5	16.0	21.0	5.0	24
81.0	18.25	23.5	5.25	22
110.0	30.0	33.5	3.5	12
112.5	27.0	31.5	3.5	11
114.0	29.	32.5	2.5	08
129.0	30.5	35.5	5.0	13

Tylosurus sp.

A single example of 59 mm. was taken in company with *T. marinus* in the "Horseshoe" on July 30. This specimen, clearly not *marinus*, measured 59 mm. and had the jaws coterminous as contrasted with the excessive shortness of those of young *marinus* of that size, as noted above. Further, the jaws were blunt and with a slight enlargement of the under one at the tip instead of being sharply pointed. The life colorations were darker and somewhat different than that of similar sized *T. marinus* as follows. Back, olive green bounded with a black lateral stripe from the tip of the snout to the tips of the central caudal rays. Silvery below, except for a dark band running from the isthmus to the vent. Lower jaw black ventrally. Lateral bands about three-quarters diameter of eye, ventral band about one-half eye. Both composed of large chromatophores evident without a glass, those of the former backed by a silvery band. Iris golden centrally, ventral half silvery, dorsal half brownish. Back prominently sprinkled with melanophores. Fins hyaline. Dorsal 17, anal 17, head 3.1, eye 7.3, snout 1.7, depth one-half post-orbital part of head. In the absence of other material for comparison it has not been identified. Mr. J. T. Nichols suggests however that it likely belongs to the *notata* group.

Apeltes quadracus (Mitchill)

Ripe fish unusually common in the "Dredged pool" on June 2, as was *Gasterosteus bispinosus* Walbaum which they outnumbered, however, about eight to one.

Mugil curema Cuvier and Valenciennes

Prior to this year *M. cephalus* Linnæus was the only species definitely noted in the bay, although the present is reputed to be the more common locally. One September 4 it was observed that not only was *curema* present but it greatly outnumbered the former. A new species for the bay.

Ammodytes americanus De Kay

Several averaging 100 mm. were taken from the stomach of a *Lophopsetta maculata* (Mitchill) on May 8. The first seen since 1921.

Lobotes surinamensis (Bloch)

One example of about 90 cm. on August 13.

Orthopristis chrysopterus (Linnæus)

One example, very dark, was taken on June 3, about 300 mm. An early date. Another of similar size and equally dark on July 30.

Sciænops ocellatus (Linnæus)

One example of over 100 cm. taken in a pound net on June 18. Not seen since 1921.

Leiostomus xanthurus Lacépède

This species was unusually common in local waters. Scale examination showed the bulk of them to be of the hatching of the fall of 1923. That is, they were nearly two years old this summer. They ranged from 85 to 145 mm. and showed a mode at 130 mm. Last winter they ranged from 45 to 100 mm. with a mode at 90.

Caranx crysos (Mitchill)

On July 22 a small example of about 30 mm. was taken in the "Horseshoe". This is the smallest that has

been taken in this bay. Its life colors when first captive were as follows. Body banded with five intense black vertical bars. Another ran from the nape through the eye diagonally forward. The ground color was a brilliant golden yellow. Spinous dorsal black, as was the tip of the soft dorsal. In the aquarium these body colors were suceptible to sudden and violent changes, the yellow being replaced by a light brassy or pure silvery. The black bands at times faded to dusky and at others nearly disappeared entirely. The changes of the two colors, black and yellow, were not definitely associated, the one often remaining constant while the other ran the gamut of its range. This fish fed freely on small amphipods and kept to the shelter of a young *Selene vomer* (Linnæus) scarcely larger than itself, although the largest fish in the tank. As time progressed the yellow became progressively less conspicuous until at the present writing, October 15, it remains entirely silvery at all times.

Trachinotus falcatus (Linnæus)

A single example of 24 mm. was taken in the "Horseshoe" on July 9. Body reddish black with silvery reflections. Iris silver. Dorsal and anal spines red, membranes of soft dorsal and anal dusky. Pectorals and ventrals hyaline, the latter edged anteriorly with deep orange. Compare with color notes taken on specimens of identical size October 4, 1922 at the same place the first time seen. (Copeia, No. 114, Jan. 20, 1923.)

Scomber scombrus Linnæus

Examples averaging 260 mm. were fairly common up to July 22 when they entirely disappeared. On July 10 small ones of about 85 mm. began to appear and replaced them. On October 8 these had apparently a length of 195 mm.

Scomber colias Gmelin

Not seen since 1920. Three in a pound with a large number of *S. scombrus* averaged 240 mm. and showed

the characteristic ventral mottling. From the latter species they could be distinguished even while swimming in the pound by the finer dorsal pattern, the reticulations being about twice as close. That is, the design is as though reduced by one-half. This was noticeable even when the clear cranial spot was not evident. Not distinguished from *S. scombrus* by the fishermen.

Sarda sarda (Bloch)

One example of 180 mm. on September 4. Coloration as follows. Thirteen nearly vertical bands, slightly backward and down. The first four double, converging a little below the lateral line. The next three independent, nearly parallel. The next four double again. The terminal two solid (on peduncle). The first four under first dorsal, the next three from its last ray to middle of second dorsal, the next four from the end of the second dorsal to the fifth finlet. Spinous dorsal black except for milk white spaces after each spine and parallel to them from the eighth spine on. The first small example seen in this bay. None seen since 1921.

Balistes carolinensis Gmelin

One example in a pound on July 2.

Stephanolepis hispidus (Linnæus)

On July 30 two examples of about 10 mm. were seined out of the loose floating *Ulva* in the "Horseshoe". Both were a bright "Ulva" green, particularly difficult to see. One taken on October 1 had lost much of its green color but had not attained the full adult coloration. It was a drab olive green. This example measured 22 mm. which, with the earlier measurements, may indicate the growth rate of this species in these waters.

Mola mola (Linnæus)

One example of about 120 cm. on August 13. Estimated by the fishermen at about 300 pounds. Dead

and partly decomposed when seen, having been jammed for some days in the mouth of the pound net.

Myoxocephalus æneus (Mitchill)

A single example of about 125 mm. was taken in a pound net on June 9 and five smaller examples in the "Dredged pool" by seine which averaged somewhat smaller. Others taken in pounds as follows: June 10, one; June 17 and 18, three (120 to 140 mm.); July 31, one (132 mm.); August 5, one (125 mm.); October 1, two (85 to 90 mm.); and October 7, one. It is strange that previously not a single specimen had been taken in the bay, and that this year they appeared in such comparatively large numbers.

Remora remora (Linnæus)

On July 30 an example of about 300 mm. was taken from the back of a meter *Caretta caretta* Linnæus and two from the back of another on September 4. This species behaved very differently than the common *Echineus naucrates* Linnæus when confined in the live-well of our boat. Incidentally the latter species was unusually common. Instead of attaching themselves to the largest fish present or excitedly swimming about from one to another these *Remora* swam freely about or attached themselves to the side of the hull. At times they leapt clear of the water and twice landed on a live-car in the well that projected about one inch above the surface of the water. Out of water instead of relinquishing their hold and attempting to escape they held firmly to the turtles' back and were dislodged with difficulty. A new species to the bay.

Microgadus tomcod (Walbaum)

Large examples, 245 to 270 mm. common on June 2 and 3. Average 260 mm. Unusual for this time of year. A single example was taken on July 2, smaller than the above, another on July 31 and August 13 of about the same size. More abundant than usual in the fyke nets in October.

Paralichthys oblongus (Mitchill)

A single example of about 300 mm. was taken on June 2 in a pound net when both *P. dentatus* (Linnæus) and *Pseudopleuronectes americanus* (Walbaum) were common. Only taken as fall records in local water previously. A new species to this bay.

The observations of this year bring the number of species definitely recorded from this bay to one hundred and six. The new ones are *Isurus tigris*, *Pteroplata maclura*, *Salmo irideus*, *Mugil curema*, *Myoxocephalus æneus*, *Remora remora*, and *Paralichthys oblongus*. In addition there are two questionable records *Tylosurus* sp., recorded this year and *Carcharinus obscurus* (Le Sueur)? recorded in Copeia, No. 127, March 29, 1924, p. 25.

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